

**MPR 7120.4  
REVISION C**

**EFFECTIVE DATE: October 26, 2005  
EXPIRATION DATE: October 26, 2010**

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# **MARSHALL PROCEDURAL REQUIREMENTS**

**DA01**

## **MSFC PROGRAM MANAGEMENT COUNCIL (PMC) PROCESS**

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### DOCUMENT HISTORY LOG

Status (Baseline/ Revision/ Canceled)	Document Revision	Effective Date	Description
Baseline		8/16/02	Defines the MSFC Program Management Council Process.
Revision	A	2/18/2004	Adds Appendixes for Content of Termination Reviews, Explanation of Red Health Status, and Monthly Health Status Reports. Deleted references to Lead Center PMC. Updated presentation content requirements for formulation and implementation requests. Directs PPA to coordinate its WBS and charge code assignments. Documents the requirement for Health Status reports being due by the 10 <sup>th</sup> of each month for each MSFC program and project. "Out-of-scope" phrase changed to "re-baselined". Organizational changes in S&MA, SMO, UP, XP and NP were incorporated. Separate appendixes for Out-of-Board process were deleted. Changed "NPG" to "NPR" throughout the document.
Revision	B	10/22/2004	Requirements clearly defined with "shall" statements. References to HQ enterprises were changed to HQ mission. The PMC acronym was changed to Program Management Committee. References to HQ Themes were deleted. Projects are required to ensure that archived data marked as proprietary is truly proprietary at project closeout.
Revision	C	10/26/2005	Deleted references to PAPAC, updated definitions for program, project activity, and Governing PMC to mirror NPR 7120.5C, pre-PMC review cycle was documented in Appendix I, clarified guidance for stoplight reporting, added emphasis for performing root cause analysis, updated organizational codes, requires that full cost budgets be presented to the PMC, added emphasis to briefing acquisition strategy to the PMC, risk management was added to the monthly status reporting requirements. The requirement for PMC approval of proposal development efforts was deleted. Changed MSFC PMC from "Committee" to "Council" to be in alignment with NASA Headquarters PMC. Added guidance for presenting annual detailed status reviews.

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## PREFACE

### P.1 PURPOSE

This Marshall Procedural Requirements (MPR) defines the process for accomplishing the responsibilities of the MSFC Program Management Council (PMC). The PMC normally convenes as a result of activities driven by MPR 7120.1. Responsibilities of the MSFC PMC are defined in MPD 1150.1, Charter MC-08.

### P.2 APPLICABILITY

This MPR applies to all proposed and established MSFC-managed Programs, Projects, and Activities (PPA) as defined by NPR 7120.5 and this document. Programs and Projects are distinguished into four investment areas: Basic and Applied Research, Advanced Technical Development, Flight Systems and Ground Support, and Institutional Infrastructure. Responsibility to report to the MSFC PMC can also be expanded to include any other initiative as requested by the MSFC PMC Chair.

### P.3 AUTHORITY

MPD 1150.1, Charter MC-08, "MSFC Program Management Council (PMC)"

### P.4 APPLICABLE DOCUMENTS

- a. NPR 7120.5, "NASA Program and Project Management Processes and Requirements"
- b. MPR 7100.1, "MSFC Proposal Development Process"
- c. MPR 7120.1, "Program/Project Planning"

### P.5 REFERENCES

None

### P.6 CANCELLATION

MPR 7120.4B dated October 22, 2004

*Original signed by  
Robin N. Henderson for*

David A. King  
Director

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## DOCUMENT CONTENT

### 1. DEFINITIONS

#### 1.1 ACRONYMS

1.1.1 AO	Announcement of Opportunity
1.1.2 AS	Office of Center Operations
1.1.3 ATP	Authority to Proceed
1.1.4 CAN	Cooperative Agreement Notice
1.1.5 CDDF	Center Director's Discretionary Fund
1.1.6 CDR	Critical Design Review
1.1.7 COFR	Certification of Flight Readiness
1.1.8 CS	Civil Service
1.1.9 CS <sup>1</sup>	Office of Strategic Communications
1.1.9 ED	Engineering Directorate
1.1.10 FRC	Federal Records Center
1.1.11 FTE	Full Time Equivalent
1.1.12 GPMC	Governing Program Management Council
1.1.13 GSFC	Goddard Space Flight Center
1.1.14 HS	Office of Human Capital
1.1.15 IA	Independent Assessment
1.1.16 IIR	Independent Implementation Review
1.1.17 IMSB	Integrated Management Systems Board
1.1.18 IS	Office of the Chief Information Officer
1.1.19 LCC	Life Cycle Cost
1.1.20 LS	Office of Chief Counsel
1.1.21 MMS	Marshall Management System
1.1.22 MO&DA	Mission Operations and Data Analysis
1.1.23 MP	Shuttle Propulsion Office
1.1.24 MPR	Marshall Procedural Requirements
1.1.25 MSFC	Marshall Space Flight Center
1.1.26 NAR	Non-Advocate Review
1.1.27 NARA	National Archives and Records Administration
1.1.28 NASA	National Aeronautics and Space Administration
1.1.29 NP	Space Transportation Programs/Projects Office
1.1.30 NPD	NASA Policy Directive
1.1.31 NPR	NASA Procedural Requirements
1.1.32 NRA	NASA Research Announcement
1.1.33 OS	Office of Equal Opportunity
1.1.34 PCA	Program Commitment Agreement
1.1.35 PDR	Preliminary Design Review
1.1.36 PMC	Program Management Council
1.1.37 PPA	Program, Project, or Activity

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1.1.38	PR	Production Review
1.1.39	PRR	Project Requirements Review
1.1.40	PS	Office of Procurement
1.1.41	QD	Safety and Mission Assurance Directorate
1.1.42	RFP	Request for Proposal
1.1.43	RLV	Reusable Launch Vehicle
1.1.44	RS	Office of the Chief Financial Officer
1.1.45	RTOPS	Research and Technology Objectives and Plans
1.1.46	SC	Support Contractor
1.1.47	SMO	Systems Management Office
1.1.48	SRR	System Requirements Review
1.1.49	WBS	Work Breakdown Structure
1.1.50	XD	Science and Technology Directorate

## 1.2 DEFINITIONS

1.2.1 Activity. Efforts that support NPR 7120.5 defined programs or projects that meet any one of the following conditions:

1.2.1.1 Multi-directorate collaborative efforts.

1.2.1.2 Greater than \$1 million budget in any one year.

1.2.1.3 Greater than \$10 million life cycle cost.

1.2.1.4 High priority to the Agency or to the Center.

1.2.2 Approval. The process used to initially decide on a program/project's readiness to proceed from formulation into implementation and subsequently used to approve changes to the program/project baseline.

1.2.3 Agency PMC. The Senior Management group, chaired by the Deputy Administrator, responsible for reviewing and approving proposed programs, and overseeing their implementation according to Agency commitments, priorities, and policies.

1.2.4 Champion. The person committed to the concept and responsible for the technical content of the proposal is the Champion. The Champion is responsible for the proposal and the planning necessary to demonstrate that the mission objectives can be met within cost and schedule constraints. The Champion is responsible for positioning to win the proposal and for aligning Independent Research & Development (IR&D) requirements and content (technical and programmatic) to meet the customer needs.

1.2.5 Directed Work. Work not usually requiring proposal development that has been requested by NASA Headquarters.

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1.2.6 Mission Directorate PMC. The Senior Management Group, chaired by the Mission Associate Administrator, responsible for providing advice, counsel, and recommendations relating to planning, implementation, and management of selected Programs and Projects.

1.2.7 Formulation Authorization. Authority given by the Agency PMC or designated Governing PMC for a Program or Project to start the formulation phase.

1.2.8 Governing Program Management Council (GPMC). The highest level PMC that has the responsibility to regularly review a program or project.

1.2.9 Independent Evaluations. Reviews conducted by a primarily non-advocate team for the purpose of providing external assessment and recommendations within its established scope. Independent evaluations include those planned as a routine course (e.g., Concept Decision Review, Preliminary NAR, NAR, Production Review).

1.2.10 Life-Cycle Cost (LCC). The total of the direct, indirect, recurring, nonrecurring, and other related expenses incurred, or estimated to be incurred, in the design, development, verification, production, operation, maintenance, support, and disposal of a project. Life-cycle cost (LCC) of a project or system can also be defined as the total cost of ownership over the project's or system's life cycle from formulation through implementation. It includes all design, development, deployment, operation and maintenance, and disposal costs.

1.2.11 MSFC PMC. Forum composed of Center Senior Management that assesses MSFC-managed PPA planning and implementation and provides oversight and direction as appropriate.

1.2.12 Project. A specific investment identified in a *Program Plan* having defined goals, objectives, requirements, life-cycle cost, a beginning, and an end.

1.2.13 Program. A strategic investment by a Mission Directorate (or Mission Support Office) that has defined goals, objectives, architecture, funding level, and a management structure that supports one or more projects.

## 2. RESPONSIBILITIES

2.1 MSFC PMC shall:

2.1.1 Ensure the MSFC PMC Charter responsibilities identified in MPD 1150.1, MC-08 are accomplished.

2.1.2 Review and commit MSFC resources to new work opportunities consistent with MSFC/Agency strategy.

2.1.3 Resolve inter-Directorate issues.

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2.1.4 Evaluate MSFC PPA, provide direction, and make appropriate recommendations to PPA and GPMC (e.g., reformulate, enter implementation, terminate project, etc.).

2.1.5 Review independent evaluation findings (e.g., Concept Decision Review, Pre-NAR, NAR, PR).

2.3 Managers of PPAs shall:

2.3.1 Prior to presenting to the MSFC PMC, complete the pre-PMC assessment per Appendix I. The PPA shall develop and coordinate the PPA financial WBS and the PPA technical WBS development so that the required correlation exists and is validated by RS01.

2.3.2 Present resource requirements (e.g., facility, workforce, budget) and planning information (e.g., integrated master schedule, planning documents, acquisition strategy) to the MSFC PMC for formulation, implementation, or rebaselining requests in accordance with Appendixes C-E.

2.3.3 Notify the MSFC PMC secretary if a PPA receives formulation or implementation authorization from the GPMC. (Activities are briefed to the GPMC as part of a Program or Project, therefore GPMC approval of the associated Program or Project shall constitute GPMC approval of the activity.)

2.3.4 Report monthly Program and Project status by the third Friday of each month for the previous month's performance (see Appendix H). An explanation including the cause, impact and mitigating actions of any Red health status condition shall be presented to the MSFC PMC when identified (see Appendix G).

2.3.5 Present annual detailed status to the PMC per Appendix K (applicable to programs and projects selected by the PMC).

2.3.6 Provide the MSFC PMC Secretary with closure results from assigned actions.

2.4 The MSFC PMC Secretary shall:

2.4.1 Provide overall MSFC PMC coordination, schedules, meeting agendas, and preparation of meeting minutes.

2.4.2 When the GPMC approves a project/program, summarize this activity to the MSFC PMC.

2.4.3 Summarize out-of-board activity to MSFC PMC.

2.4.4 Present a status of MSFC PMC assigned actions to the MSFC PMC.

2.4.5 Maintain MSFC PMC minutes and the MSFC PPA list.

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2.4.6 Evaluate presentation material to ensure compliance with format and content requirements.

2.5 Independent Evaluation Teams shall provide findings to MSFC PMC prior to briefing results of assessments to higher level PMCs.

### 3. PROCEDURE

#### 3.1 General Method of Operation

3.1.1 The MPR 7120.1 is the overarching document that establishes the requirements for initiating an MSFC PMC meeting. When required, the MSFC PMC shall convene to assess MSFC-managed PPA to ensure their readiness to proceed/continue with formulation or implementation. PPA managers shall present to the MSFC PMC for five purposes:

3.1.1.1 Requesting the MSFC PMC for approval to start/complete the formulation phase. MSFC PMC approval constitutes the MSFC commitment and recommendation to the GPMC for a PPA to start/continue the formulation phase. Content requirements are defined in Appendix C.

3.1.1.2 Requesting the MSFC PMC for approval to start/complete the implementation phase. MSFC PMC approval constitutes the MSFC commitment and recommendation to the GPMC for a PPA to start/continue the implementation phase. Content requirements are defined in Appendix D and are consistent with the content in the program/project plan.

3.1.1.3 Requesting the MSFC PMC for approval to rebaseline a previously approved PPA baseline. MSFC PMC approval constitutes the commitment and recommendation to the GPMC to rebaseline a PPA that is outside its approved cost, schedule or technical scope. Content requirements are defined in Appendix E

3.1.1.4 Present the PPA Closeout Plan. Content requirements are defined in Appendix F.

3.1.1.5 Present an explanation of a Red condition associated with PPA health status. Content requirements are defined in Appendix G.

3.1.2 Each Program/Project Office shall present a monthly health status report for each Program and Project. The presentation material shall be provided to the PMC secretary by the third Friday of each month for the previous month's performance. Content requirements are specified in Appendix H. Selected programs and projects shall present an annual detailed status review per Appendix K.

3.1.3 In addition to the PPA presentations to the MSFC PMC, independent evaluation teams (e.g., Concept Decision Review, Preliminary NAR, NAR, Production Review) shall periodically report their findings and recommendations to the MSFC PMC. Evaluation team findings shall always be provided to the MSFC PMC prior to briefing higher-level PMCs (see Appendix A for

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NASA's PMC hierarchy). The MSFC PMC briefings are to be scheduled through the MSFC PMC Secretary.

3.1.4 Out-of-board decision-making by the MSFC PMC Chair is not the preferred process and is to be used on an exception basis. All out-of-board decisions shall be documented in writing and provided to the MSFC PMC Secretary. The MSFC PMC Secretary shall summarize all out-of-board decisions at the next MSFC PMC. The out-of-board process shall not be permitted for a PPA requesting a change in PPA baseline.

3.1.5 The MSFC PMC Chair shall convene the Council, monthly or more often if required, to discharge the responsibilities and perform the functions of the Council. The MSFC PMC Secretary shall coordinate requests for special MSFC PMCs with Center management.

3.1.6 PMC membership is defined by the MSFC PMC Charter, MPD 1150.1, MC-08. Attendance is limited to MSFC civil servants. Exceptions shall be coordinated with the PMC Secretary. The results of the Council's assessments shall be documented in the form of findings and required actions. PPA managers shall provide the MSFC PMC Secretary with closure results from assigned actions. The MSFC PMC Secretary shall provide a status of MSFC PMC actions at each MSFC PMC meeting. The PMC Chair shall approve action closures.

3.1.7 Although the MSFC PMC may commit MSFC resources and approve the planning for a PPA, the PPA shall gain approval of the GPMC for authorization into formulation, implementation, or change in PPA baseline. Activities are briefed to the GPMC as part of a Program or Project, therefore GPMC approval of the associated Program or Project shall constitute approval of the activity. Appendix A depicts the hierarchy of PMCs, which summarizes the role of the various PMCs and the relationships between the Agency PMC, Mission Directorate PMC, and MSFC PMC.

3.1.8 Special PMC meetings may be called for any purpose at the discretion of the PMC Chair. These briefings may not fit the categories of briefings defined in Appendixes B-I. The content of Special PMC briefings shall be coordinated with the PMC Secretary prior to the PMC meeting.

### 3.2 Formulation / Implementation Activities

<u>Actionee</u>	<u>Step</u>	<u>Action</u>
Champion/ Manager of PPA	3.2.1	Determination has been made to request an MSFC PMC meeting. This is usually a result of MPR 7120.1 (e.g., Formulation/ Implementation requests or re-baseline of a PPA) or MPR 7100.1 (e.g., proposal development activities) process.  If a determination is made to seek an out-of-board decision, then the out-of-board decision shall be documented in writing and provided to the MSFC PMC Secretary

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Champion/ Manager of PPA	3.2.2	The MSFC PMC Secretary shall be given notification of intent/reason. Reasons include: Formulation request, Implementation request, Rebaselining request, Closeout Review Plan, Explanation of Red Health Status, and independent evaluation briefing.
MSFC PMC Secretary	3.2.3	The MSFC PMC Secretary shall schedule the meeting and provide the presenter with presentation templates and instructions. These templates, depending on the nature of the request, shall follow the material outlined in Appendices B-H. Any changes shall be coordinated with the MSFC PMC Secretary.
Champion/ Manager of PPA	3.2.4	3 weeks prior to the PMC meeting, pre-PMC assessment data shall be provided to the PMC secretary as specified in Appendix I.
MSFC PMC Secretary	3.2.4.1	The PMC secretary shall ensure pre-assessment data is made available for review.
Champion/ Manager of PPA	3.2.4.2	Briefing package shall be developed in accordance with Appendices B-H and submitted to the MSFC PMC Secretary. Ensure financial and technical WBS correlation.
MSFC PMC Secretary	3.2.4.3	The PMC secretary shall review the presentation material to ensure content requirements are satisfied. The MSFC PMC Secretary shall provide a summary of the package to the MSFC PMC members prior to the face-to-face MSFC PMC meeting.
MSFC PMC	3.2.5	The MSFC PMC is convened. The MSFC PMC members shall evaluate presentation material, make recommendations, and assign actions as required.
MSFC PMC Secretary	3.2.5.1	The MSFC PMC Secretary shall record minutes. At the conclusion of the meeting, the MSFC PMC Secretary shall review the actions taken and make corrections as required. The MSFC PMC Secretary shall also summarize all “out-of-board” decisions since the last MSFC PMC meeting along with open actions items. Actions shall be assigned a completion due date by the MSFC PMC.
MSFC PMC	3.2.5.2	Once satisfied, the MSFC PMC Chair shall approve the actions and dismiss the meeting. (At this point the Champion/Lead Directorate or managers of PPA proceed with the MPR 7120.1 or MPR 7100.1 process.)

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MSFC PMC Secretary      3.2.6      The MSFC PMC Secretary shall distribute meeting minutes in a timely manner and maintain a record of the minutes. The MSFC PMC Secretary shall update the MSFC PPA List as required.

Champion/  
Manager of PPA      3.2.7      Action closure submittals shall be provided to the MSFC PMC Secretary.

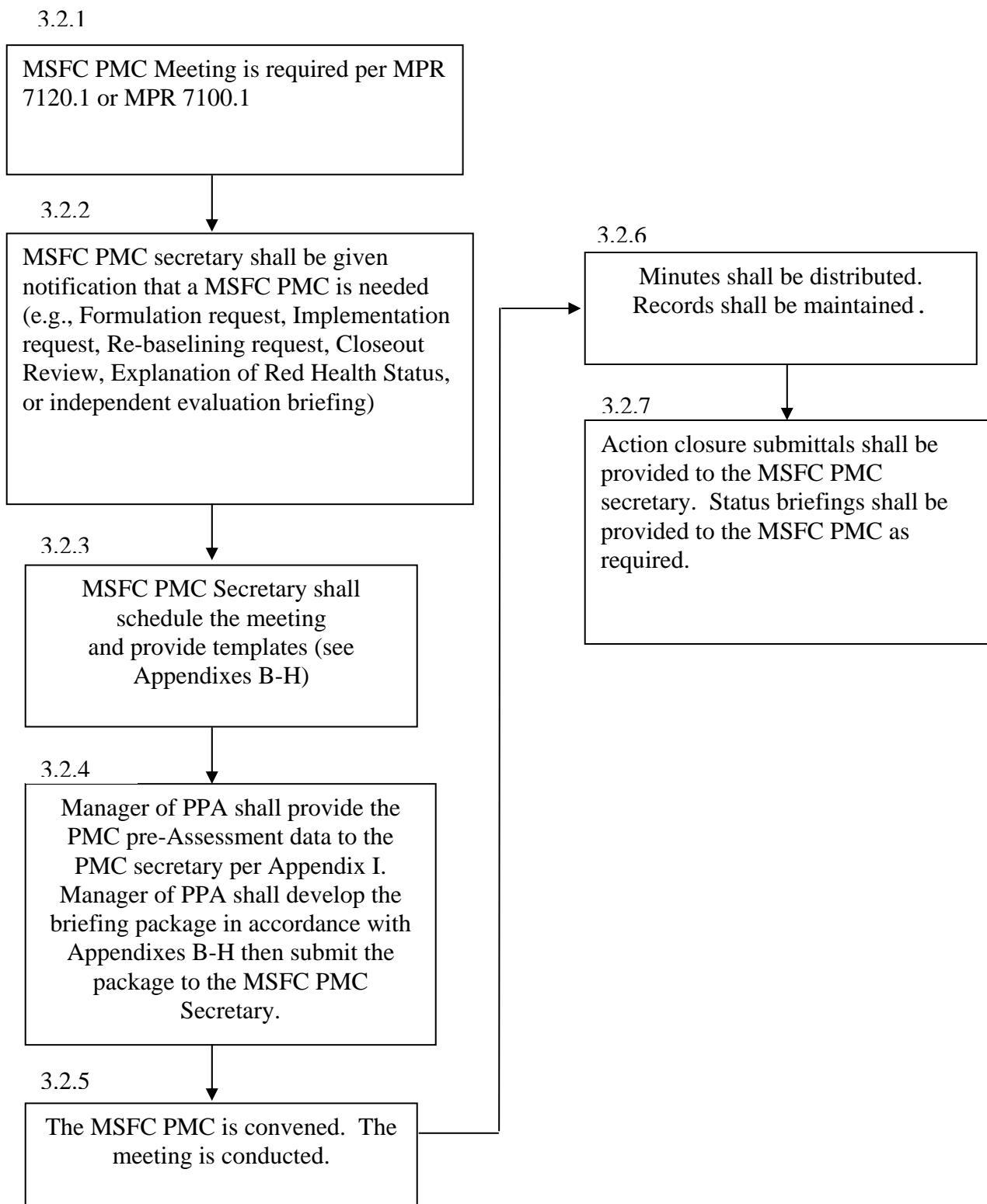
MSFC PMC Secretary      The MSFC PMC Secretary shall track, review, and status actions to the MSFC PMC as required.

#### 4. RECORDS

Record	Location	Retention Time	Disposition	Remarks
MSFC PMC Secretary Meeting Minutes - includes presentation material, meeting minutes and assigned actions and action closures	MSFC PMC Secretary Office	Per NPR 1441.1, AFS No 1150, Permanent	Retire to FRC when 2 years old. Transfer to NARA when 20 years old.	

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## 5. Flow diagram for regular PMC meetings.



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## APPENDIX A: PMC Hierarchy

### CORE Roles

Serves as a forum to address coordination of Programs across Mission Directorates  
Default GPMC for Programs and Category I Projects per NPR 7120.5  
Baselines and assesses Program performance  
Approves and Review new Programs  
Approves Program Commitment Agreements

#### Agency PMC

**If Designated as GPMC, the PMC has additional responsibilities:**

- Primary responsibility for evaluating the cost, schedule, and technical content
- Recommends approval or termination to the appropriate decision authority
- Charters and Reviews Independent Evaluations (Concept Decision Review, Pre-NAR, NAR, PR)

Oversight authority for those programs and projects assigned per NPR 7120.5 or delegated by the Agency PMC  
Default GPMC for Category II Projects per NPR 7120.5  
Provides recommendations to Mission Directorate Associate Administrator and Agency PMC  
Resolves Mission Directorate issues with Program/Project

#### Mission Directorate PMC

Accomplish the responsibilities of MPD 1150.1, MC-08 including:  
Default GPMC for Category III Projects per NPR 7120.5  
Reviews & commits MSFC resources to new work opportunities consistent with MSFC/Agency strategy  
Resolves inter-Directorate issues  
Evaluate MSFC PPA, provide direction, and make appropriate recommendations to PPA and GPMC (e.g., reformulate, enter implementation, terminate PPA, etc.).  
Recommends termination or continuation for Programs, Projects or activities that breach their baseline  
Reviews independent evaluation findings (e.g., Concept Decision Review, Pre-NAR, NAR, PR).

#### MSFC PMC

Reviews & confirms Office/Directorate commitment to new work opportunities  
Resolves intra-Product Line issues  
Endorses Project Plans  
Routinely reviews Project health status  
Reviews Independent Evaluations (e.g., Concept Decision Review, Pre-NAR, NAR, PR).  
Reviews GPMC presentations

#### Program/Project Office

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## **APPENDIX B: Suggested Presentation Format for Independent Evaluation Briefing**

### **B.1 Overview of PPA**

### **B.2 Scope of Review**

B.2.1 Independent Evaluation Team Members

B.2.2 Schedule of Independent Evaluation Activities

### **B.3 Findings:**

B.3.1 Differentiate between minor findings (i.e., observations) and major concerns

B.3.2 Provide an overall assessment of the PPAs health

### **B.4 Recommended Corrective Actions:**

B.4.1 When possible, provide guidance to the PPA to correct findings

### **B.5 PPA response to independent review findings:**

B.5.1 Document how the PPA plans to address the finding (a separate PPA briefing may be required)

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## **APPENDIX C: Requesting the MSFC PMC for Approval to Start/Complete the Formulation Phase - Presentation Outline**

### **C.1 Description of “New Work” request**

- Name of PPA and official acronym
- PPA Authority. Specify GPMC, HQ Mission Directorate, and Program Responding to (e.g., Request for Proposal (RFP), Announcement of Opportunity (AO), NASA Research Announcement (NRA), Cooperative Agreement Notice (CAN); or directed work)
- Brief description of the PPA
- Include a diagram
- Explanation of alignment with MSFC and Agency strategic roles and missions (including PCA, Program Plan)
- Identify specific proposal development metrics\*
- Commitment by “home” Directorate and affected Directorates
- Results of Purple and Red Team reviews of proposal\*

*Typical MSFC PMC Questions:*

*Who are your customers and stakeholders?*

*Did the Purple and Red team reviews identify any problem areas?\**

\*not applicable to directed work

### **C.2 Scientific and technical objectives**

State the PPA objectives, performance goals and how they support Program and Mission Directorate goals and objectives.

*Typical MSFC PMC Question:*

*Have you made a technology readiness assessment for critical elements of initiative and associated technology readiness levels (TRL)?*

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### C.3 Center Resource Requirements

Workforce requirements. Specify Civil Servant (CS) and Support Contractor (SC) FTEs by Directorate. Enter a “dash” if no support is required:

		FY--	FY--	FY--	FY--	FY--	TOTAL
AS	CS						
	SC						
CS <sup>1</sup>	CS						
	SC						
ED	CS						
	SC						
HS	CS						
	SC						
IS	CS						
	SC						
LS	CS						
	SC						
MP	CS						
	SC						
NP	CS						
	SC						
SP	CS						
	SC						
OS	CS						
	SC						
PS	CS						
	SC						
QD	CS						
	SC						
RS	CS						
	SC						
XD	CS						
	SC						
TOTAL	SC						
	CS						

### C.4 Specify institutional services

- Identify MSFC facilities to be used (by civil service or contractor), new facilities, facility modifications, Information Technology improvements (e.g., larger bandwidth requirements), environmental, security, medical, etc.
- Specify time period that facilities are used.

*Typical MSFC PMC Question:*

*Have workforce commitments been fully coordinated with all Directorates?*

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## C.5 Budget

- Provide a spend plan per fiscal year.
- Indicate % reserves per year.
- Indicate if the Program has allocated reserve for a project.
- Indicate who holds the budget reserve.
- Indicate the budget needed to complete the formulation phase.
- Indicate the total life cycle cost.
- Document pertinent budget assumptions.

Suggested format for budget information:

	FY--	FY--	FY--	FY--	FY--	FY--	FY--.	TOTAL
Procurements								
Labor								
Travel								
Service Pools								
Center G&A								
TOTAL								
% reserves								

Budget assumption 1 ...  
 Budget assumption 2 ...  
 etc.

*Typical MSFC PMC Question:*

*Do you consider your cost reserve allocations to be adequate?*

## C.6 Schedule

- Provide an integrated master schedule
- Planned dates for all Formulation milestones including:
  - Proposal Submission Date\*:
  - Proposal Selection Date\*:
  - PRR
  - SRR
- Planned dates for all Implementation milestones including:
  - PDR
  - CDR
  - DCR
  - Acceptance Review
  - Delivery

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Launch date  
Begin operations

\*Not applicable to directed work

**C.7 Briefly describe the approach for accomplishing new work planning** for the following:

New Work Planning (address compliance with NPR 7120.5)

- Project Plan
- Configuration Management / Data Management Planning
- Safety and Quality Planning
- Risk Management Approach/Planning
- COFR Process
- Export Control Plan
- Systems Engineering Management Plan/Systems Engineering Approach
  - Operational concepts
  - Significant concept trades
  - Functional decomposition

*Typical MSFC PMC Questions:*

*Does your project fully comply with NPR 7120.5?*

*What reviews are you planning?*

**C.8 Management structure**

- Provide an organizational chart.
- Identify key team members.
- Provide a Level 2 technical WBS with corresponding charge codes.
- Identify planned partnering with contractors and other NASA Centers or international participants.
- Specify roles and responsibilities.

*Typical MSFC PMC Question:*

*Have all partnering relationships been depicted on the organization chart?*

**C.9 Acquisition strategy**

- Describe the possible options in how the project will accomplish its goals and objectives.
- Describe the considerations in how make or buy decisions will be made (e.g., procure hardware, services, or COTS items versus an in-house product or service). Consider the benefit to Center capabilities gained from in-house work.
- Describe possible procurement strategies for acquiring non-civil servant manpower.

**C.10 Risks and technical challenges**

- Identify top risks and mitigation strategies.

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- Identify all advances required in technology readiness levels as a top risk.
- Provide a 5x5 risk matrix if available.
- Indicate the level of government oversight for each major subsystem / element by specifying the level of technical penetration.

*Typical MSFC PMC Question:*

*Are there any significant technology challenges?*

### **C.11 Competitive assessment**

- State chances of winning proposal.
- Request PPA formulation ATP.

*Typical MSFC PMC Question:*

*What are the chances of winning this proposal (applicable to proposals only)?*

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## **APPENDIX D: Requesting the MSFC PMC for Approval to Start/Complete the Implementation Phase - Presentation Outline**

### **D.1 PPA background (1-2 charts)**

- Name of PPA and official acronym.
- PPA Authority. Specify GPMC, HQ Mission, and Parent Program.
- Brief description of the PPA.
- Include a diagram.
- Explanation of alignment with MSFC and Agency strategic roles and missions (including PCA, Program Plan).
- Review of proposal development metrics with actual performance (not applicable to directed work).

*Typical MSFC PMC Questions:*

*Are the PCA and Program Plan signed and do they include adequate funding/schedule?*

*Are the Program requirements clear/unambiguous and flowed down into the Project Plan?*

*Who are your customers and stakeholders?*

*Have you considered Lessons Learned that might apply to your project?*

(2-3 charts covering top-level information)

### **D.2 Scientific and Technical Objectives**

State the specific PPA objectives, performance goals and how they support Program and Mission Directorate goals and objectives.

*Typical MSFC PMC Questions:*

*Do you have baselined Science Requirements?*

*Have you done adequate Systems analysis and trades and have a handle on the System Requirements and a viable design concept that meets the science/technology requirements?*

*Have you made a technology readiness assessment for critical elements of initiative and associated technology readiness levels (TRL)?*

*Where is your maximum and minimum success criteria defined?*

*What is your maximum and minimum success criteria?*

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### D.3 Center Resource Requirements (1-2 charts)

Workforce requirements. Specify Civil Servant (CS) and Support Contractor (SC) FTEs by Directorate. Enter a “dash” if no support is required:

		FY--	FY--	FY--	FY--	FY--.	TOTAL
AS	CS						
	SC						
CS <sup>1</sup>	CS						
	SC						
ED	CS						
	SC						
HS	CS						
	SC						
IS	CS						
	SC						
LS	CS						
	SC						
MP	CS						
	SC						
NP	CS						
	SC						
SP	CS						
	SC						
OS	CS						
	SC						
PS	CS						
	SC						
QD	CS						
	SC						
RS	CS						
	SC						
XD	CS						
	SC						
TOTAL	SC						
	CS						

### D.4 Specify institutional services

- Identify MSFC facilities to be used (by civil service or contractor), new facilities, facility modifications, Information Technology improvements (e.g., larger bandwidth requirements), environmental, security, medical, etc.
- Specify time period that facilities are used.

*Typical MSFC PMC Questions:*

*Have you documented your MSFC workforce requirements using the CWC process? Are there any issues?*

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## D.5 Budget

- Provide a spend plan per fiscal year.
- Indicate % reserves per year.
- Indicate who holds the budget reserve.
- Indicate if the Program has allocated reserve for a project.
- Indicate the budget needed to complete the Implementation Phase by completing the table below.  
Indicate the total life cycle cost.
- Document pertinent budget assumptions.

Suggested format for budget information:

	FY--	FY--	FY--	FY--	FY--	FY--	FY--.	TOTAL
Procurements								
Labor								
Travel								
Service Pools								
Center G&A								
TOTAL								
% reserves								

Budget assumption 1 ...

Budget assumption 2 ...

etc.

*Typical MSFC PMC Questions:*

*Has SMO provided you with an Independent cost estimate?*

*Does the LCC include spares, trainers?*

*Is this Program Critical Hardware (PCH)?*

*Is your schedule realistic and do you have adequate schedule reserve?*

*Are you using EVM?*

## D.6 Schedule

- Provide an integrated master schedule.
- Provide a line-graph to depict planned burn-down of schedule reserve in the critical path from PDR to delivery. See Appendix K for an example.
- Completion dates for all Formulation milestones including:
  - Proposal Submission Date\*:
  - Proposal Selection Date\*:
  - PRR
  - SRR

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- Planned dates for all Implementation milestones including:

PDR  
CDR  
DCR  
Acceptance Review  
Delivery  
Launch date  
Begin operations

#### **D.7 Internal and Independent Evaluation Reviews (e.g., Concept Design Review, Pre-NAR, NAR, or Production Review)**

- Results/Open Issues

*Typical MSFC PMC Questions:*

*Are there any open issues, if so what is the scheduled closure date(s)?*

#### **D.8 Describe the key aspects for the following PPA implementation plans**

- Project Plan (address compliance with NPR 7120.5)
- Configuration Management / Data Management Plans
- Safety and Quality Plans
- Risk Management Plan
- COFR Process
- Export Control Plan
- Systems Engineering Management Plan/Systems Engineering Approach
  - Operational concepts
  - Significant concept trades
  - Functional decomposition
- Descope Approach/Plan (required when cost commitments are exceeded)

*Typical MSFC PMC Questions:*

*What was the tailoring approach to the above mentioned items?*

*Any MMS waivers/deviations requested/required?*

*Does your project have a Level III and IV CCB?*

*Are you performing Insight or Oversight and are we penetrating to the proper level?*

*Has your team taken the Risk Management Class offered by MSFC S&MA?*

*What are your Technical Performance Measurements (TPMs)?*

*How do you handle requirements flow down from System level to EIS level?*

*Does your project have a verification process and does it support a "test like you fly" philosophy?*

*What reviews are you planning/supporting (Show Schedule)?*

*How are you covering Software IV&V?*

*How will your COFR statement be written? What are we signing up for?*

#### **D.9 Acquisition strategy**

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- Describe how the project will accomplish its goals and objectives.
- Provide justification for make or buy decisions (e.g., procuring hardware, services, or COTS items versus an in-house product or service). Consider the benefit to Center capabilities gained from in-house work. Indicate the percentage of work to be accomplished in-house.
- Describe the procurement strategy for acquiring non-civil servant manpower, products or services.

*Typical MSFC PMC Questions:*

*Can you justify your make or buy decisions?*

*What type of contract instrument are you using and what if any issues do you have?*

*Do you anticipate any long lead procurements necessary before PDR or CDR?*

#### **D.10 Management structure**

- Provide an organization Chart.
- Provide a technical WBS per NPR 7120.5 with corresponding UPN fund center.
- Identify team members.
- Identify partnering with contractors and other NASA Centers or international participants.
- Describe roles and responsibilities.

*Typical MSFC PMC Questions:*

*Have all partnering relationships been depicted on the organization chart?*

#### **D.11 Internal and/or External Agreements (1-2 charts)**

*Typical MSFC PMC Questions:*

*Are the agreements in place, are there any issue?*

*How are you covering Export Control?*

#### **D.12 Risk assessment and mitigation approach (1-2 charts)**

- Identify top risks / mitigation strategies.
- Identify all advances required in technology readiness levels as a top risk.
- Provide a 5x5 risk matrix.
- Review of catastrophic and critical risks, trends, and exit/acceptance strategies.
- Indicate the level of government oversight for each major subsystem / element by specifying the level of technical penetration.

*Typical MSFC PMC Question:*

*Talk about your top ten list.*

*Identify your high-risk elements within the WBS.*

*Do you have adequate support from the ED, S&MA, and other Center experts and does that meet your Insight/oversight penetration requirements?*

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### **D.13 PPA Implementation ATP Statement**

(PPAs request to proceed into implementation.)

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## **APPENDIX E: Requesting the MSFC PMC for Approval to Rebaseline a Previously Approved PPA Baseline - Presentation Outline**

### **E.1 Summary of Proposed Re-Baseline**

- Complete the following table to provide a top-level comparison of the previously approved baseline vs. proposed re-baseline.

	Previously Approved PPA Baseline	Proposed Re-Baseline of PPA (state "no change" when applicable)
Authority	○ Specify GPMC, HQ Mission, and Parent Program name	○ Specify changes in PPA authority
Technical	○ Summarize the previously approved PPA technical objectives	○ Summarize the proposed changes in PPA technical scope.
Cost	○ Current FY budget and total LCC	○ Current FY budget and total LCC
Schedule	○ Normally specify either a delivery date or launch date	○ Normally specify either a delivery date or launch date
Workforce	○ FTEs for Current year	○ FTEs for Current year

### **E.2 Briefly state the root causes that contributed to the breach of the PPA baseline.**

**E.3 Describe in detail the portions of the PPA that are to be rebaselined** by comparing the currently approved baseline to the requested rebaseline. The level of detail shall be commensurate with level of detail provided in Appendix D.

For example:

- If Budget or reserves are to be changed, provide a side-by-side comparison of the previously approved budget vs. proposed re-baseline.
- If PPA end date is to be extended. Provide a side-by-side comparison of the previously approved master schedule vs. proposed re-baseline master schedule.
- If mission success criteria or technical objectives are to be modified (e.g., descope), provide a detailed side-by-side comparison of the previously approved baseline vs. proposed re-baseline.
- If additional Center workforce is required, provide a side-by-side comparison of the previously approved baseline vs. proposed re-baseline.
- If acquisition strategy is to be modified, describe any changes in the proposed re-baseline.

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## **APPENDIX F: Closeout Plan – Presentation Content**

### **F.1 PPA Authority:**

- Specify HQ Mission Directorate, and Program.
- Specify Governing PMC.

### **F.2 PPA Description:**

- Specify PPA objectives.
- Planned life cycle cost.
- Specify PPA start date and planned completion date.
- Estimate the % PPA was completed.

### **F.3 Evaluate whether Mission Success Goals have been met**

### **F.4 Reason for Termination (if applicable)**

- For example, technical objective could not be obtained, budget over-runs, inadequate reserves, schedule driven problems, etc.

### **F.5 Impact to MSFC/Agency (if PPA is being terminated or if all mission success objectives were not met)**

- Specify the impact to MSFC's mission by not accomplishing PPA goals.
- Identify any technology gaps or unmitigated risks to MSFC or Agency mission objectives.
- Describe any Termination costs associated with existing contracts.

### **F.6 Hardware disposition**

- Specify how any PPA hardware is to be dispositioned (scrapped, long-term storage, etc.).
- If applicable, define long-term storage requirements, explain why storing hardware is in the best interests of the Center.

### **F.7 Records Retention**

- Specify how PPA records are being archived (analysis, drawings, review packages, lessons learned, etc.).
- Ensure that archived data marked as proprietary is truly proprietary.
- Indicate workforce available to accomplish the records retention.
- Identify any workforce shortfalls in accomplishing records retention.

### **F.8 Present a summary list of lessons learned if relevant to the PMC audience**

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## **APPENDIX G: Explanation of Red Health Status to the MSFC PMC – Presentation Content**

### **G.1 Brief Description of PPA:**

- Provide a one or two line description of the PPA and its objectives.
- Include a concept drawing.

**G.2 Detailed comparison of actual performance to the approved project baseline.** This status needs to be equivalent to the level of detail being briefed at monthly PPO/Directorate reviews. Include the following information relative to the Red condition.

#### **G.2.1 Description of Red Condition:**

- Clearly state how the condition does not meet the approved PPA baseline (e.g., launch date has slipped 6 months from approved baseline).
- Cost: Exceeds approved planned budget and exceeds approved reserves.
- Schedule: Reserves for critical path have been depleted and PPA end date is expected to slip.
- Technical objectives are not being met that threaten mission success criteria.
- If Red applies to more than one area, provide a separate explanation for Cost, Schedule, Technical and/or Management.

#### **G.2.2 List the root causes for the Red condition.**

- Cause and effect analysis (or equivalent) shall be used to systematically determine root causes.

#### **G.2.3 Action the PPA is taking to resolve the issue**

- Describe actions to correct the breach to the project baseline (e.g., Continuation plan or Termination Plan).
- Describe action to prevent recurrence.
  - Action the project is taking to eliminate or mitigate root causes.
  - Recommended action that the PMC could take to eliminate or mitigate root causes to prevent systemic problems.

### **G.3 If applicable, indicate the date when PPA will present its proposed re-baseline to the MSFC PMC:**

- Consult with the PMC Secretary for available PMC dates and/or need to re-baseline your PPA.
- Commit to a date for rebaselining the PPA to the MSFC PMC, if required.

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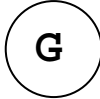




## APPENDIX H: Monthly Health Status Reporting

**H.1 Summary Status for each MSFC Program and Project** shall be presented to the PMC by the Program/Project Office or Directorate. Selected activities may also be required to present monthly status if directed by the PMC.

### H.1.1 The following information shall be provided for Summary Status Briefings

- Recent Events including accomplishment of major milestones (summarized at the PPO/Directorate level).
- Stoplight Status is to be evaluated in four areas: Management, Cost, Schedule, and Technical using the Agency Stoplight Criteria, which is defined in paragraph I.3.
  - Show summary status of all programs and projects in the Program/Project office on one page.
  - Present a description for each Yellow/Red condition.
    - Identify Root Causes for Red conditions and indicate if PMC or IMSB action is required to improve Center processes.
    - Describe the continuation plan associated with a Red condition or mitigations associated with a Yellow condition.
    - Red conditions shall present to the PMC per Appendix G.
  - Explain improvements in health status.
- Identify Lessons Learned.
- Risk Management 5x5 Matrix (summarized at the Directorate level).
  - Identify top risks.
  - Identify which risks have been forwarded to the Program level.
  - Identify possible PMC or IMSB action that could help mitigate risk.
- Upcoming Events (include but do not present).
- Provide an information summary of all PPO/Directorate work not included in a PPA. Tasks may be rolled-up into appropriate line items. Highlight areas of expanded scope or new work at the next PMC.

### H.1.2 The following format is acceptable for the PPAs Monthly Health Status Report:

	Management	Cost	Schedule	Technical
Project ABC				
Project XYZ				

### Project ABC

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Explanation of Red/Yellow:

Cost -

Schedule -

Root Causes for Red Condition:

Cost -

Schedule -

Continuation Plan:

Explanation of Improved Condition:

### **Project XYZ**

Explanation of Red/Yellow:

Root Causes for Red Condition:

Continuation Plan:

Explanation of Improved Condition:

**H.2 Detailed status briefings shall be presented to the PMC for selected programs and projects at least once every 12 months. Detailed status briefings shall be presented at the same level of detail being briefed at monthly PPO/Directorate reviews**

**H.3 The Agency Stoplight criteria is defined as:**

- Green - Progressing according to Plan.
  - Meeting management plans\* or commitments.
  - No action required.
- Yellow - an area of concern.
  - Deviating from plans\* or commitments, but approved contingency/reserves exists to recover and successfully complete the program/project as approved.
  - Needs attention. Problem can be resolved within the reporting organization.
  - *MSFC PMC guidance: If reserves are held at a higher level, yellow is still valid as long as a reserve lien has been identified to the higher level authority and the higher authority agrees in writing to absorb the deviation.*
- Red - a significant problem.
  - Deviating from plans\* or commitments, with insufficient approved contingency/reserves to recover and successfully complete the program/project as approved.
  - Needs action. Help required beyond the reporting organization to address the problem.

\* In Implementation, the appropriate document is the approved program/project plan. During Formulation, report against appropriate approval document (e.g., FAD or equivalent).

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## **H.4 Element Definitions & Expanded Criteria**

### **H.4.1 Management**

Evaluate all Program/Project management planning and processes for completeness, accuracy, and compliance to NPR 7120.5 and MSFC Management System (MMS) instructions.

- Green - Plans, processes and risk management approach adequately satisfy Agency and MSFC Program/Project Requirements.
- Yellow - Plans, processes and risk management approach do not adequately satisfy Agency and MSFC Program/Project requirements but issues are being addressed and can be accomplished internal to the initiative.
- Red - Plans, processes and risk management approach do not adequately satisfy Agency and MSFC Program/Project requirements and issues cannot be resolved without help external to the initiative.

### **H.4.2 Cost**

Evaluate how the Program/Project budget is performing (EAC-Estimate At Complete) against the approved Program/Project Plan budget (BAC-Budget At Complete), and FY Actual versus Planned performance.

- Green - Specified tasks are within approved budget plans, without utilizing reserves.
- Yellow - Year end estimates of costs or obligations for the planned work in the current year exceed planned expenditures, but variance can be accommodated by allocation of existing reserve. If reserves are held at a higher level, yellow is still valid as long as a reserve lien has been identified to the higher level authority and the higher authority agrees in writing to absorb the deviation.
- Red - Year end estimates exceed FY budget, including reserve (at the project level or higher if reserves are held at a higher level), or EAC exceeds approved BAC.

### **H.4.3 Schedule**

Evaluate the use of your Program/Project reserves (slack) to maintain the critical path schedule and ensure major milestones and the Program/Project delivery date(s) approved in the Program/Project Plan are met.

- Green - Program/Project is on schedule and major milestones will not be delayed.
- Yellow - Major milestones may be delayed but adequate schedule reserve is available in the baseline schedule to meet the planned delivery and/or launch date(s). The approved schedule reserve burn-down plan shall be used to determine when adequate reserve is available between PDR and delivery (see Appendix I).
- Red - Reserves for critical path schedules are depleted and approved delivery date is expected to slip.

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#### **H.4.4 Technical Performance**

Evaluate how the Program/Project is meeting the requirements that are documented in the approved Program/Project Plan.

- Green - Technical objectives are being met with no threat to mission success criteria.
- Yellow - Technical objectives are not being met and threaten mission success criteria, but an acceptable contingency plan exists to meet approved requirements.
- Red - Unable to meet technical objectives and mission success criteria without help external to the initiative.

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## APPENDIX I: Data Requirements and Timeline for pre-PMC Assessment of Formulation Requests, Implementation Requests and Rebaseline Requests

	3 weeks prior	2 weeks prior	1 week prior	Week of PMC
<u>Manager of PPA</u> : Request to be included on the PMC Agenda by contacting PMC secretary	▲			
<u>Manager of PPA</u> : Provide pre-assessment data package to PMC secretary <sup>1-7</sup>	▲			
<u>CFO</u> - Perform Independent Cost Estimate <sup>1</sup>	▶			
<u>CFO</u> - Perform schedule assessment <sup>2</sup>	▶			
<u>CFO</u> - Perform budget assessment <sup>3,7</sup>	▶			
<u>DA</u> – Perform Technology risk assessment <sup>4</sup>	▶			
<u>Affected orgs</u> - Review/comment on draft project plan <sup>5</sup>	▶			
<u>Manager of PPA</u> : Resolve issues with pre-assessment data package			◀	
<u>Affected orgs</u> : Conduct Table-Top Review of project plan <sup>4</sup>			▲	
<u>Manager of PPA</u> : Prepare presentation charts <sup>8</sup>			▶	
<u>Manager of PPA</u> : Provide draft PMC presentation charts to PMC secretary			▲	
Conduct PMC				▲

### NOTES:

1 Independent cost assessment data (only required for flight or flight –like hardware projects with life cycle cost >\$10M).

2 e-Schedule in native format (e.g., Microsoft Project). The review evaluates your schedule to determine if it is reasonable, mechanically sound, and achievable utilizing available resources.

3 Full cost budget includes the following line items: Procurements, Labor, Center G&A, Travel, and Service Pools. Indicate reserve posture.

4 Technology risk assessment data

5 Draft Project Plan (Not applicable for projects requesting approval for formulation or rebaselines during formulation).

6 EVM data for rebaseline, if available

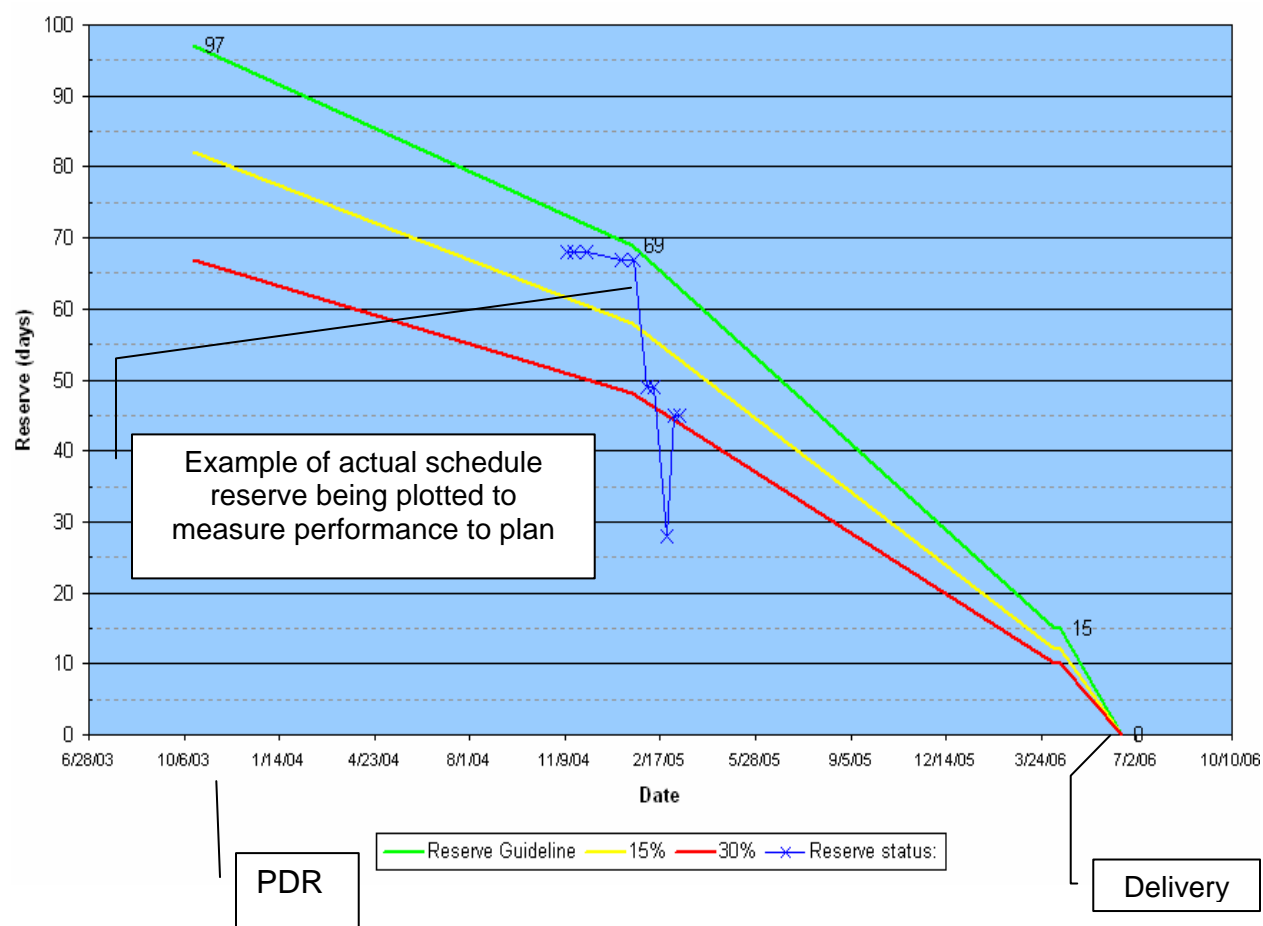
7 CFO Cost Model data including FTE matrix for civil servants/support contractors.

8 Content for PMC briefings is specified in MPR 7120.4 Appendixes C, D, and E.

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## APPENDIX J: Example of Schedule Reserve Burn-Down Plan



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## **APPENDIX K: Annual Detailed Status Reviews**

K.1 The following metrics need to be considered. Program/Project metrics may be tailored by selecting the most appropriate set of attributes. Consider the type of program/project and its position in the program or project life cycle. PPOs shall approve the metrics for each individual program or project.

### **K.1.1 Schedule and Cost metrics**

- Standard wInsight reports for projects having Earned Value Management requirements
- Variances against PMC baseline
- Schedule reserve burn-down

### **K.1.2 Technical metrics**

- Change traffic trends (Engineering Change Notices, Interface Revision Notices, or Field Changes)
- Nonconformance trends (Discrepancy Reports, Nonconformance Reports, Deviation Approval Request, etc.)
- Open Work trends (Verification items, RIDS, etc.)
- Open Work trends at the launch/test site
- Mishap reports (Class A-D)
- Quality Escapes
- # RIDS / Cost of RIDS

### **K.1.3 Management Metrics**

- Project plan approved
- CADR (Cost Analysis Data Requirement) approved